

CORRESPONDENCE/MEMORANDUM

Date: July 26, 1985

File Ref: 2100

To: Persons Interested in Master Plans for Fishery Areas

From: James T. Addis, Director, Bureau of Fish Management, Box 7921, Madison, WI 53707

Subject: Master Plan Review - Radley Creek Fishery Area

During the past several decades, a number of properties have been purchased throughout the state by the Wisconsin DNR's Bureau of Fish Management. These properties are located on waters with valuable fishery resources and have been purchased to insure their preservation for this and future generations. Not only will they be used as a fishery resource by the public, but often they will be available for hunting, trapping, forest management, mushroom and berry picking, nature tours, photography, plus many other compatible public uses.

To insure that each fishery area will be managed properly, the Department has designated a task force of specialists of various disciplines including fish, wildlife and forestry to prepare a master plan for large properties or a less detailed management plan for smaller properties. The plans make use of the most up-to-date management techniques to insure maximum success for the future of the area.

Attached is such a master or management plan. It will contain two terms which may be unfamiliar to you that need definition. They are:

Boundary: Each plan for a fishery area will show a previously approved boundary, or may propose a revision of the boundary or propose a new boundary. The boundary is simply a perimeter within which the state proposes to buy land or land rights important to protect the lake or stream named as the fishery area. In some cases the state will attempt to buy all of the land within the boundary, but on most fishery areas only a portion of the land is recommended for acquisition. While the Department of Natural Resources has the right of Eminent Domain or Condemnation, as do other units of government, that right is rarely exercised and has been used in a small fraction of our purchases. The day-to-day operating policy of the Department is to acquire land as it becomes available from willing sellers.

Acreage Goal: The acreage goal is the total number of acres within the boundary that have been approved for purchase by the Natural Resources Board. The task force may recommend an increase or decrease in the acreage goal in the master plan, which must be approved by the Natural Resources Board. In most cases we do not plan to purchase every parcel within an area and the acreage goal is less than the area within the property boundary.

I would appreciate receiving any comments you may have relating to this plan. For your convenience, a comment form has been provided for your use during the 45-day review period. If there are extenuating circumstances that will prevent you from reviewing this plan in the 45 day period, an extension may be granted. Please request the extension in writing by contacting me at the address above.

JTA:aep
Attach.

RECEIVED D.M.P.
JUL 29 1985
LAKE INDEPENDENT DIST. HQ.

MASTER PLAN COMMENTS

Summary Sheet

Radley Creek Fishery Area

1. Your assignment deadline: SEPTEMBER 9, 1985
2. When complete, route to: _____
3. Overall view: Excellent; Good; Fair; Poor;

4. Comments (Indicate by page number) _____

Your Name

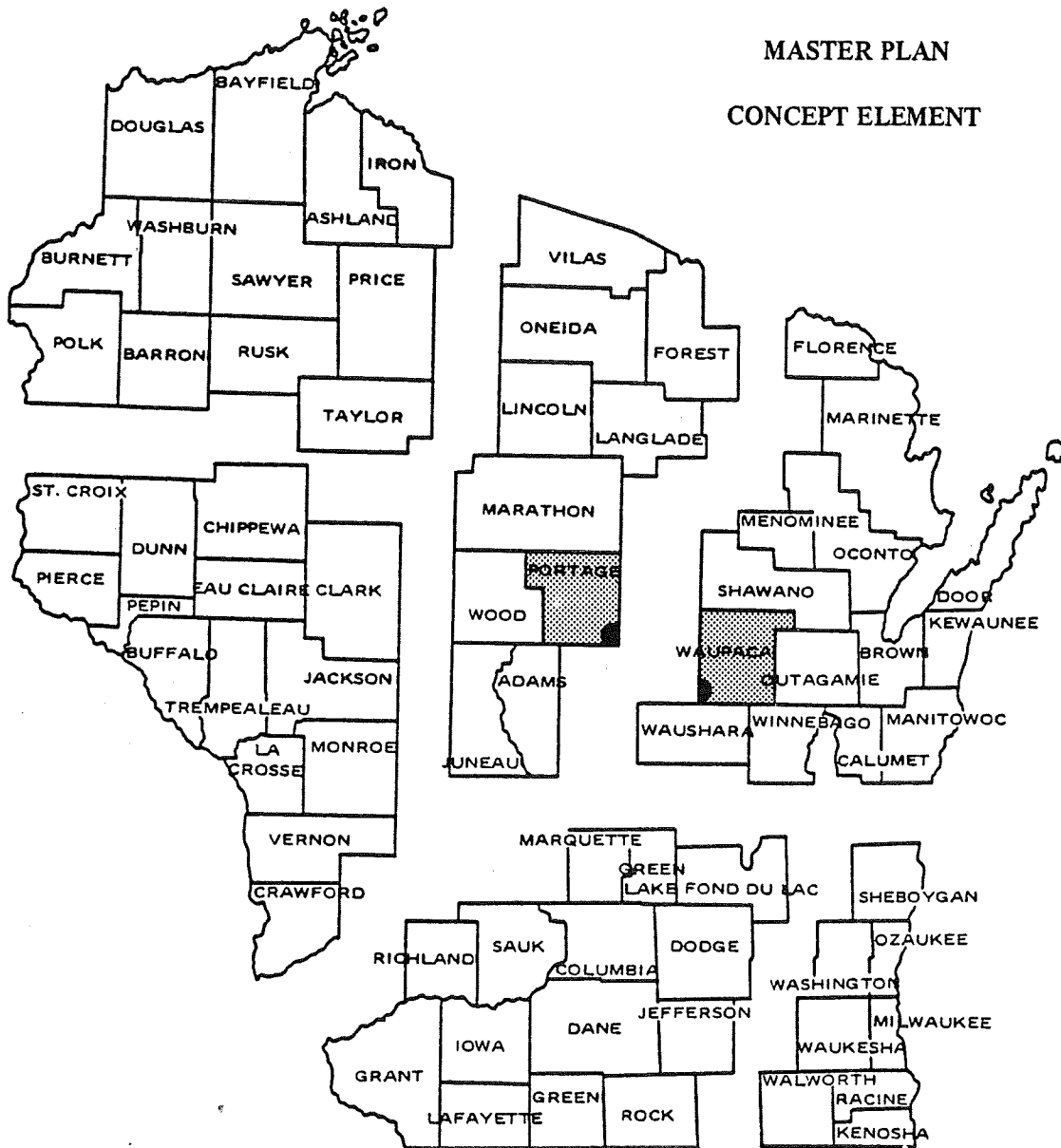
Your Organization

Address, State

Date

RADLEY CREEK FISHERY AREA
PORTAGE AND WAUPACA COUNTIES

MASTER PLAN
CONCEPT ELEMENT



Property Task Force

Leader – Mike Primising, Fish Manager
Tom Howard, Wildlife Manager
Hugh Hayes, Forester

Approved by Natural Resources Board

Date

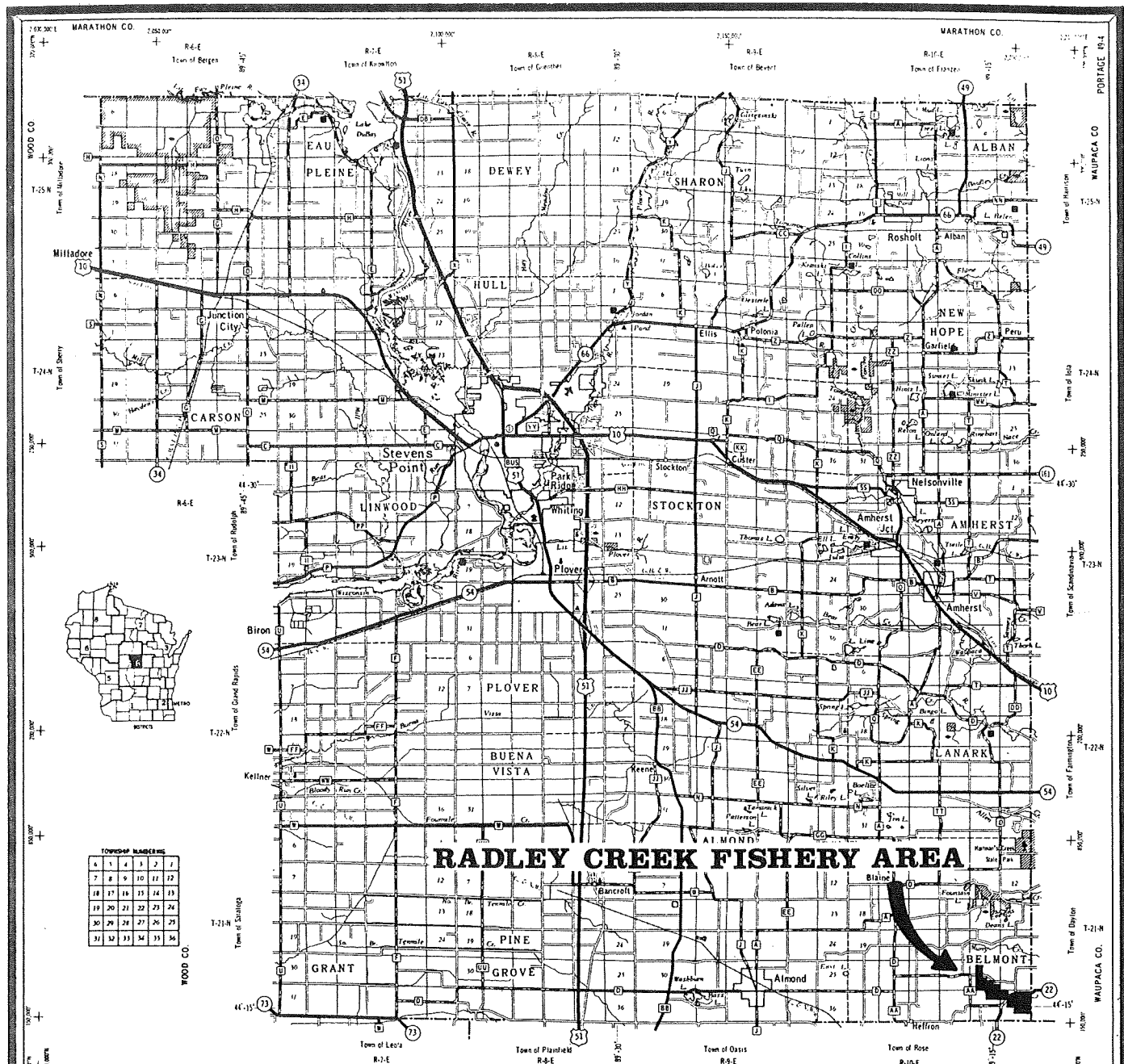
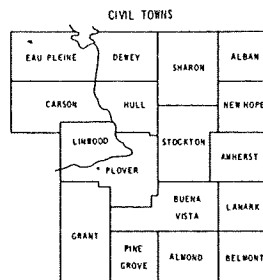


Figure 1a. Location - Radley Creek Fishery Area, Portage and Waupaca Counties.

- LEGEND**
- | | | |
|---------------------------------------|--------------|-------------------------------|
| Portland Cement | U.S. & STATE | Card Town Boundary |
| Blum Concrete | COUNTY | Corporate Limits |
| Brummond | | Hot & Dry Forest |
| Gravel | | Airport |
| Earth | | Fish Hatchery |
| Town Road | | Game Farm |
| Fox Line | | County Seal |
| Multiple Divided | | Unincorporated Village |
| Freeway | | Schools |
| Interchanges | | Public Road or Fish Grd. |
| Highway Separation | | Hospital |
| Interstate Highway No. | | Ranger Station |
| U.S. Highway No. | | Public Camp & Picnic Grd. |
| State Highway No. | | State Park - With Campsites |
| County Hwy. Letter | | Without Campsites |
| Roadbed | | County Park - With Facilities |
| Dike | | Without Facilities |
| State Boundary | | Wayside - With Facilities |
| County Boundary | | Without Facilities |
| Surface types on main roads not shown | | Wisconsin State University |



MILES OF HIGHWAY
as of Jan. 1, 1977

STATE	735
COUNTY	444
LOCAL ROADS	1159
OTHER ROADS	4
TOTAL FOR COUNTY	1742

Line Area 475 Sq. M.
Perimeter 1.19
County Seat Stevens Point

PORTAGE CO.
DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

STATE OFFICE BUILDING

Madison, Wisconsin

SCALE 1" = 1 MILE

Corrected for

JAN. 1978

Compiled from U.S.G.S. Quadrangles

Based on Aerial Photographs

+ Grid based on Wisconsin coordinate system, north-central zone

PORTAGE 49-4

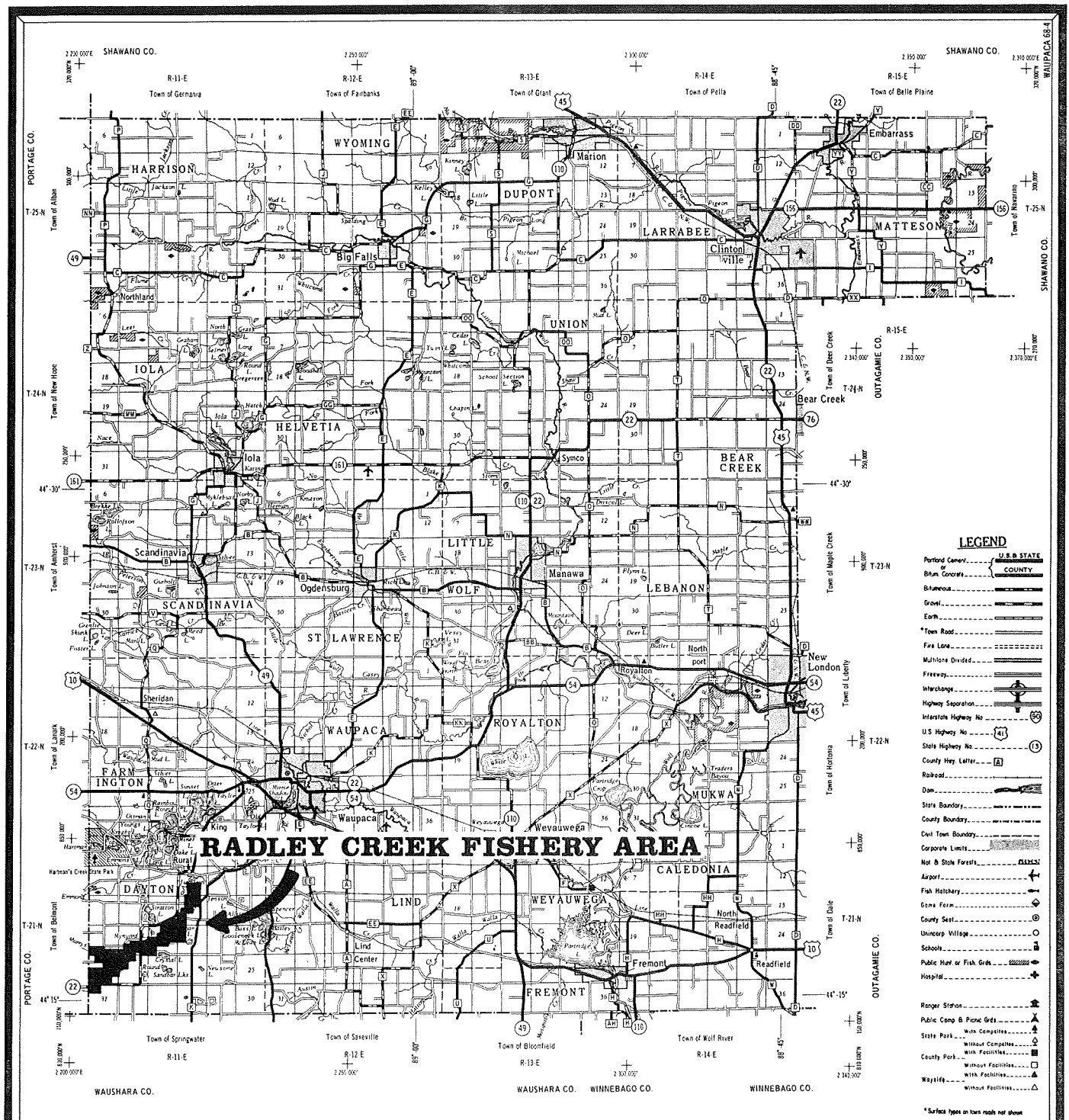


Figure 1b. Location - Radley Creek Fishery Area, Portage and Waupaca Counties.

CIVIL TOWNS

HARRISON	WYOMING	DUPONT	LARRABEE	MATTESON
IOLA	HELVETIA	UNION	BEAR CREEK	
SCANDINAVIA	ST. LAWRENCE	LITTLE WOLF	LEBANON	
FARMINGTON	WAUPACA	ROYALTON	MUKWA	
DAYTON	LIND	WEYAUEGA	CALEDONIA	
		FREMONT		

WILES OF HIGHWAY
as of Jan. 1, 1975

STATE	184
COUNTY	242
LOCAL ROADS	1016
OTHER ROADS	4
TOTAL FOR COUNTY	1546

TOWNSHIP NUMBERING

6	1	4	1	2	1
7	8	9	10	11	12
18	17	16	15	14	13
29	20	21	22	23	24
40	26	28	27	26	25
31	32	33	34	35	36



WAUPACA CO.
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 1 MILE

Corrected for
JAN. 1976

Compiled from U.S.G.S. Quadrangles
Based on Aerial Photographs

WAUPACA 68-4

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SECTION I - ACTIONS

GOALS, ANNUAL OBJECTIVES AND ANNUAL ADDITIONAL BENEFITS

Goals:

To manage and preserve trout habitat within the boundaries of the Radley Creek Fishery Area in Waupaca and Portage Counties; to enhance public fishing and accommodate other activities consistent with the capabilities of the resource, while maintaining the integrity and aesthetics of the area.

Annual Objectives:

1. Provide opportunities for 1500 angler trips for brook and brown trout, with a harvest rate of 0.5 trout per fishing hour.
2. Provide opportunities for 3,250 participant days of hunting for white-tailed deer, waterfowl, ruffed grouse, cottontail rabbits, gray and fox squirrels and raccoons, and 700 participant day of trapping for mink, muskrats, raccoons, foxes, beaver, and otters.
3. Manage timberlands to provide approximately 125 cords of firewood.
4. Maintain and protect the shoreline of 11-acre Mud Lake as a scientific area.

Annual Additional Benefits:

1. Provide 500 participant days of other recreational and educational activities including berry picking, cross-country skiing, hiking, nature study and snowshoeing.
2. Contribute to the habitat of native or migratory endangered and threatened species.
3. Contribute to the habitat of a variety of game and non-game flora and fauna indigenous to the area.
4. Enhance water quality through streambank protection and erosion control on adjacent uplands.

RECOMMENDED MANAGEMENT AND DEVELOPMENT PROGRAM

The acquisition of land within the proposed boundary will continue. It will be the policy of the Department, as in the past, to acquire land by negotiations with willing sellers.

Approval is requested to increase the acreage goal by 300 acres. This increase would be accomplished by reducing the acreage goal of Waupaca County remnant areas by 150 acres and of Portage County remnant areas by 150 acres. If the fishery area acreage goal of 1,382.92 acres recommended by this task force is approved, then acquisition is 69.7% complete. The remaining acreage of 418.76 acres is estimated to cost \$460,000 (1985 dollars).

It is recommended that in the next evaluation of the master plan, consideration be given to revising the acreage goal in line with any changing statewide acreage goals in order to accommodate expanding demands for public recreational areas.

Acquisition priority will be given to those areas with major spawning grounds and spring areas that are necessary toward the maintenance of a self-sustaining, wild trout fishery.

It is proposed to increase the boundary along the south shore of Mud Lake located in Section 21, T21N, R11E (Figure 2). This addition is requested by DNR personnel representing the Scientific Areas Preservation Council.

Trout stream habitat development (Figure 3) will continue to provide and maintain increased numbers of legal-sized trout to offset anticipated increased angler harvest. This will involve the placement of bank covers, bank rip-rap, half-logs, and related activities in the stream channel. Development will be scattered throughout approximately 3,800 feet of stream at an estimated cost of \$30,000 which will be obtained from Trout Stamp funds.

Streambank vegetation control will be accomplished using mechanical means or E.P.A. approved herbicides with aquatic labels only on approximately 8,000 feet of stream where brush growth is excessive and degrading to trout habitat. The estimated costs of the initial brushing is \$4,500.

Maintenance of approximately 5,700 feet of existing instream structures and 6,900 feet of previously brushed streambanks will be accomplished at an annual cost of about \$1,000.

Beaver and beaver dams will be controlled when the need arises.

Wildlife management actions that will be considered include expanding food and cover by planting, thinning and sharecropping. At this time, 22 acres of land are sharecropped to provide food patches, maintain openings and provide nesting cover. This program is expected to continue.

A 130-acre parcel of land located in the SE 1/4, Section 20, and the SW 1/4, Section 21, T21N, R11E will continue to be designated as a dog training area as specified by NR 17.02.

A Scientific Area designation will be given to a 80 to 90-acre parcel that includes Mud Lake in Section 21, T21N, R11E.

Forestry on the Radley Creek Fishery Area will be carried out according to management guidelines. Both sawtimber and pulpwood could be harvested along with firewood sales, the latter being the result of oak wilt disease making serious incursions into that type. Dutch elm disease has severely damaged the swamp hardwood type. Past beaver activity has helped convert swamp hardwood and tamarack into lowland brush. Because of serious mortality in the poor quality swamp hardwood types and inaccessibility, they will be left as is to provide habitat for a variety of birds and animals.

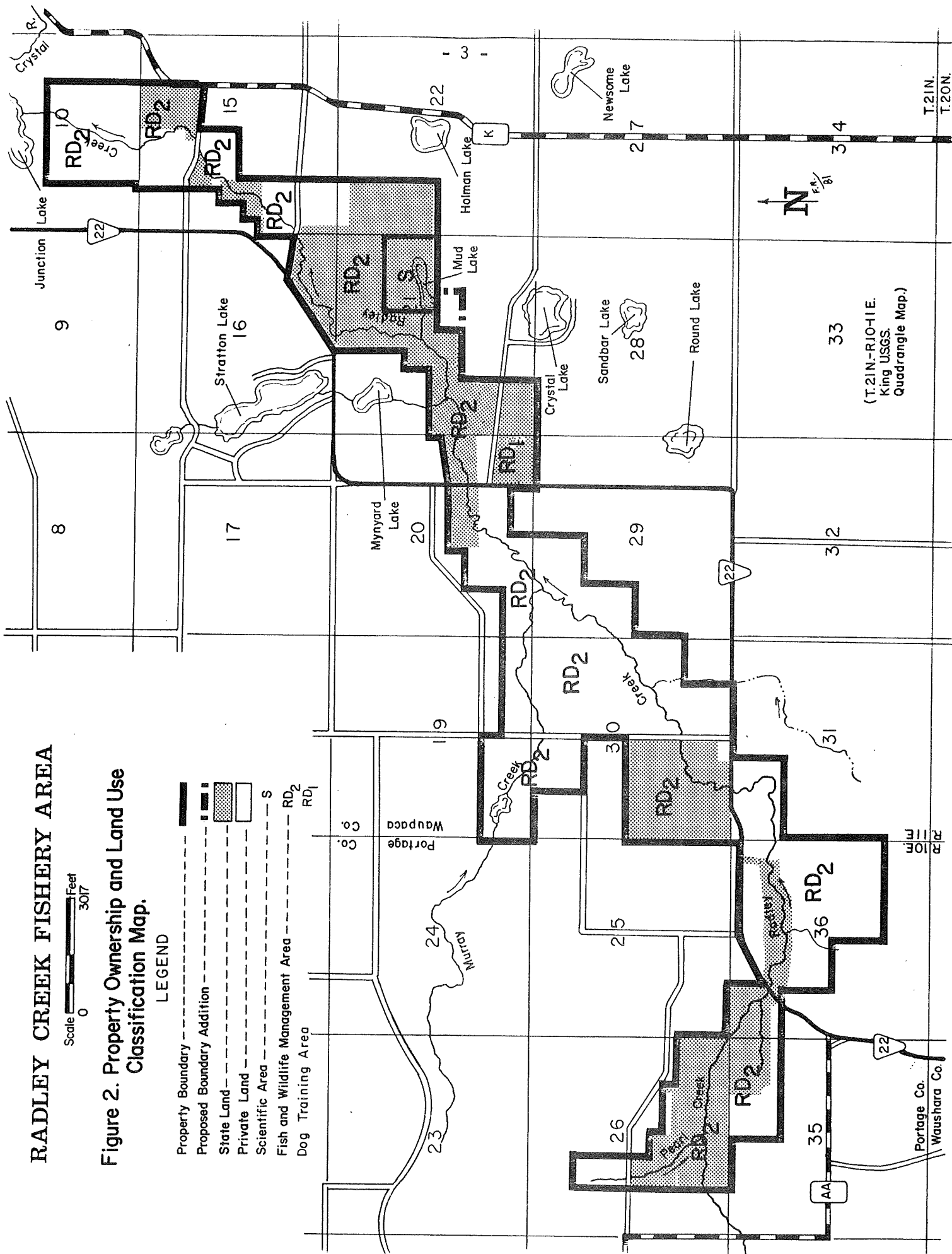
RADLEY CREEK FISHERY AREA

Scale 0 Feet 3017

Figure 2. Property Ownership and Land Use Classification Map.

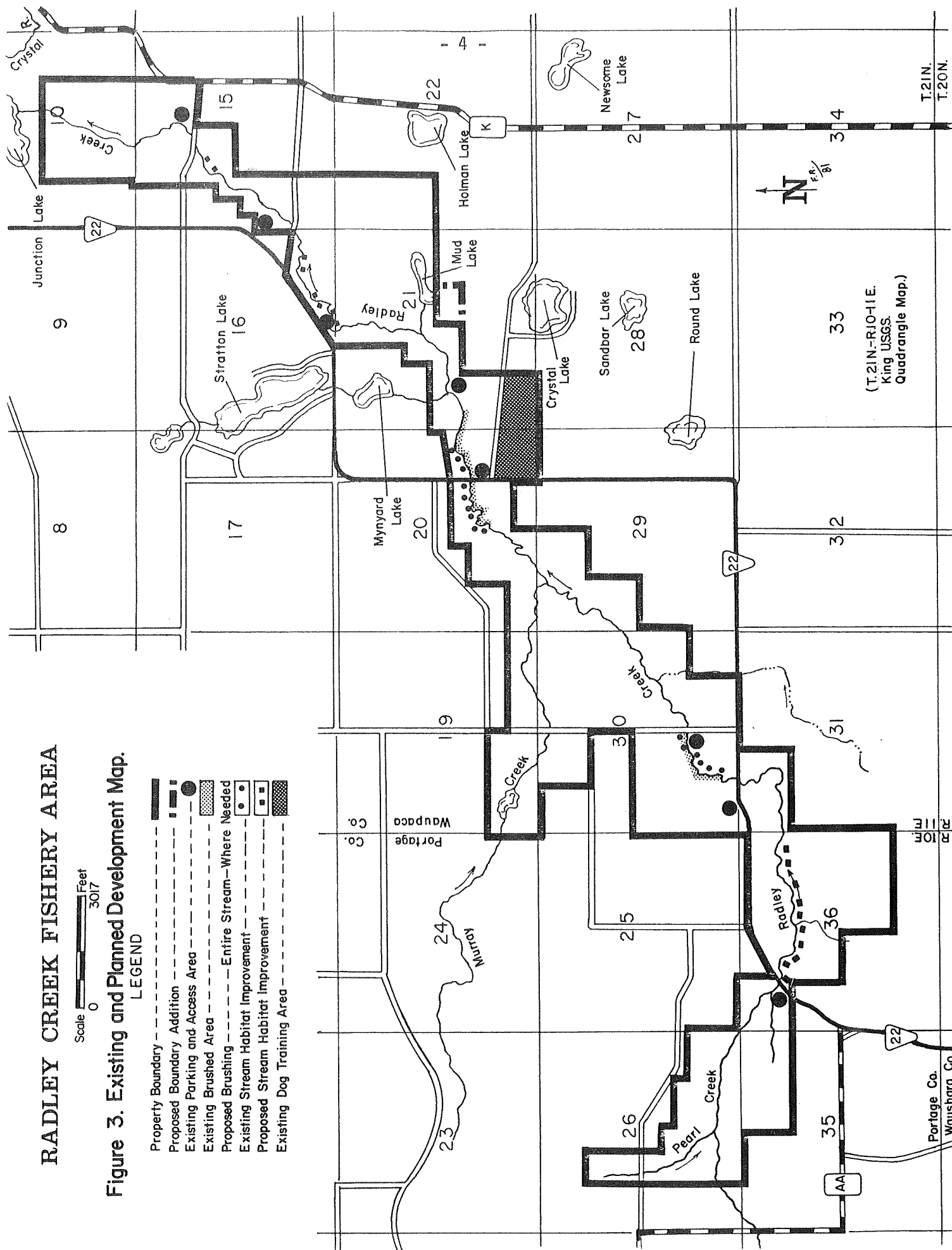
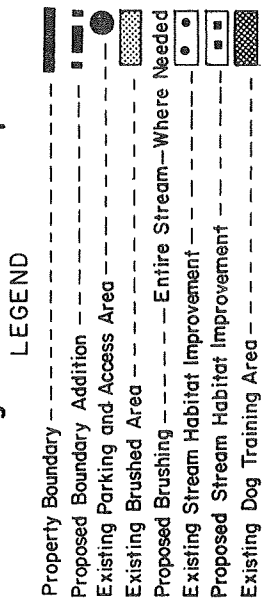
LEGEND

- Property Boundary - - - - -
- Proposed Boundary Addition - - - - -
- State Land - - - - -
- Private Land - - - - -
- Scientific Area - - - - - S
- Fish and Wildlife Management Area - - - - - RD₂
- Dog Training Area - - - - - RD₁



Scale 0 Feet 3017

Figure 3. Existing and Planned Development Map.



The pine plantations will be managed on an even-aged basis with a 90-130 year rotation to produce sawtimber with pulpwood and other products being removed in intermediate thinnings.

The oak type will be managed on an even-aged basis with an 80-100 year rotation for saw timber.

Provisions will be made to keep some of the standing dead trees and snags as den trees, woodduck cavities for nesting, and for woodpeckers. Some of the oak timber will be utilized for piling and planking materials in the construction of instream devices associated with fish habitat improvement projects.

The development of access points and parking areas will be provided as needed on new land purchases. Vehicular traffic will be kept at a minimum in an effort to maintain an enjoyable outdoor experience. Yearly maintenance costs on existing parking lots, fences and cattle watering areas will be about \$800.

The lands will be open to public hunting, trapping, educational tours and day-use activities. No public overnight camping will be allowed. Cross-country skiing will be allowed although no established trail will be offered by the DNR. The Department will entertain requests for utility easements, land use permits covering such activities as snowmobile trails, sharecropping, etc. These requests will be weighted against the impact on the resources and compatibility with primary management objective, public interests and uses.

All areas proposed for development will be examined for the presence of endangered and threatened wild animals and wild plants. If listed species are found, development will be suspended until the District Endangered and Non-game Species Coordinator is consulted, the site evaluated, and appropriate protective measures taken.

A complete biological inventory of the property will be conducted as funds permit. Additional property objectives may be developed following completion of such an inventory.

SECTION II - SUPPORT DATA BACKGROUND INFORMATION

History of Property Creation

Public lands or land rights on the banks of navigable waters are necessary to assure the public right to use of these waters, to develop and protect critical habitat areas and provide public use facilities.

The Department of Natural Resources and its predecessor, the Wisconsin Conservation Department has long recognized the importance of maintaining the quality of the choice trout waters of Radley Creek. The Radley Creek Fishery Area was proposed to the Wisconsin Conservation Commission and approved as an acquisition project in 1958. The acreage goal was established at 2,450.45 acres. In 1974, acreage goals for the fishery area were reduced to 1,082.92 to release acreage for other high-priority statewide projects and to comply with the long-range statewide ownership goal of 1.3 million acres established in 1961. That acreage goal is the one currently approved.

Some of the stream improvement devices and streambank brushing dates back to the late 1960's and early 1970's. The most recent work was completed on 1,930 feet of stream in 1981 and involved streambank brushing, installation of half-logs and brush bundles to narrow the stream and provide cover. This is being evaluated by coldwater research personnel to compare the pre- and post-development changes in the physical characteristics of the stream and determine the response of the trout population to different developmental procedures in the study zone.

Radley Creek is a very popular trout stream. A particle creel census in the open season of 1976 showed that fishing pressure exceeded 300 hours per acre of water on some stream sections. Pressure held up well throughout the entire fishing season. Season catch rates averaged 0.4 trout/hour. Approximately 50% of the anglers traveled more than 50 miles (1 way) to fish Radley Creek. Worms were the most frequently used bait followed by spinners and flies.

The public lands along the Creek are located in prime deer range. Waupaca County has ranked in the top five counties for its registered deer kill in the bow-gun season for years. Hunting pressure in excess of 50 hunters per square miles is common on opening weekend of the gun season. Small game hunting, trapping, waterfowl hunting, picnicking, mushroom and berry picking, nature study, hiking and cross-country skiing are other recreational activities. A few land-use permits for firewood and pine bough harvesting have been issued in the past. The day of free firewood permits is a thing of the past on state-owned fishery areas.

A total of 962.76 acres are now in fee title and 1.4 acres in easement ownership, and are used primarily for public hunting and fishing. Habitat protection and restoration has been an integral part of the management program on these purchased acres. There are approximately 4.8 miles of Radley Creek in public ownership. In addition, state ownership encompasses 90% of the frontage on Mud Lake (3,430 feet of lakeshore) plus 330 feet of the lake outlet to its confluence with the Radley. Management activities have included trout stocking, fence maintenance (560 rods plus 2 cattle watering areas), agricultural land use agreements (22 acres), development of 8 parking lots, instream habitat improvements scattered throughout 5,765 feet of stream and streambank brush control along 6,925 feet of stream (Figure 3).

Annual trout stocking (1,000 fish) took place on the lower section of the stream in Waupaca County until 1969. For a number of years in the late 1960's, all hatchery trout were finclipped to determine their contribution to the overall population of the stream and to the fishermen's creel. Creel census data collected showed that native fish supported the bulk of the catch and stream survey work determined that natural recruitment of fish was satisfactory to support a fishery without supplemental stocking. The entire length of stream was reclassified to Class I and stocking was discontinued in 1970.

RESOURCE CAPABILITIES AND INVENTORY

Soils, Geology and Hydrology

The character of the surface soils of Waupaca County are the result of several distinct methods of accumulation with their origin being glacial, alluvial and lacustrine. In addition, the accumulation of organic matter in various low places has resulted in the formation of some peat soils. The lands within the watershed range from nearly level to sloping and rolling. The soils are coarse-textured and underlain by dominantly outwash sands and gravels. They have excess drainage and thus irrigation is required in order to allow them to reach maximum agricultural productivity. Major soil associations include Plainfield, Gotham, Sparta, Wyocena and Coloma.

The continual recharge of the groundwater table accounts for spring flow in, and along the stream, resulting in fairly stable stream flows.

Fish and Wildlife

The principal fish species found in the waters of the Radley Creek system include brown and brook trout, common and hog suckers, muddlers, brook lampreys, creek and horneyhead chubs and northern common shiners. A few rock bass, perch and bluegills have been sampled during survey work.

A shocker survey in 1980 on 4.1 miles of stream produced an average of 439 brown trout and 150 pounds per acre, with 1,040 trout per mile of stream.

Approximately 33% to the legal trout sampled exceeded 10.0" in length with almost 17% exceeding 12.0" in length up to 18.9 inches. For comparison purposes, other highly regarded Class I trout waters in central Wisconsin including Soules Creek, West Branch, White River, the Pine River, Willow Creek, and Peterson Creek support summer brown trout population with an average of 15% of legal fish exceeding 10", with only 1-3% exceeding 1-3% exceeding 12.0". The 150 pounds per acre estimate is the highest recorded on any survey of premiere streams of the area. (West Branch White River - 133 lbs per acre; Soules Creek - 121 lbs per acre).

Aquatic invertebrate insect life include mayflies, caddisflies, stoneflies, midgeflies, dragonflies and damselflies. Crustaceans present include crayfish and freshwater shrimp, and molluscs are represented by snails and a few species of clams.

Reptiles include fox snake, bullsnake, water snake and a variety of garter snakes. Turtle species include the snapper and painted types.

Amphibians are represented by tiger and spotted salamanders, newts and toads. Frogs present include spring peepers, chorus frogs, gray tree frogs, green and leopard frogs. Pickerel frogs may inhabit the springs and seepage areas along the creek but their presence has never been documented.

The major game animals and furbearers include white-tailed deer, fox and gray squirrels, cottontail rabbits, ruffed grouse, puddleducks, raccoons, muskrats, foxes, beaver, otters and mink. A variety of non-game birds and animals inhabit the area, both seasonally and permanently.

Vegetative Cover (See Figure 4)

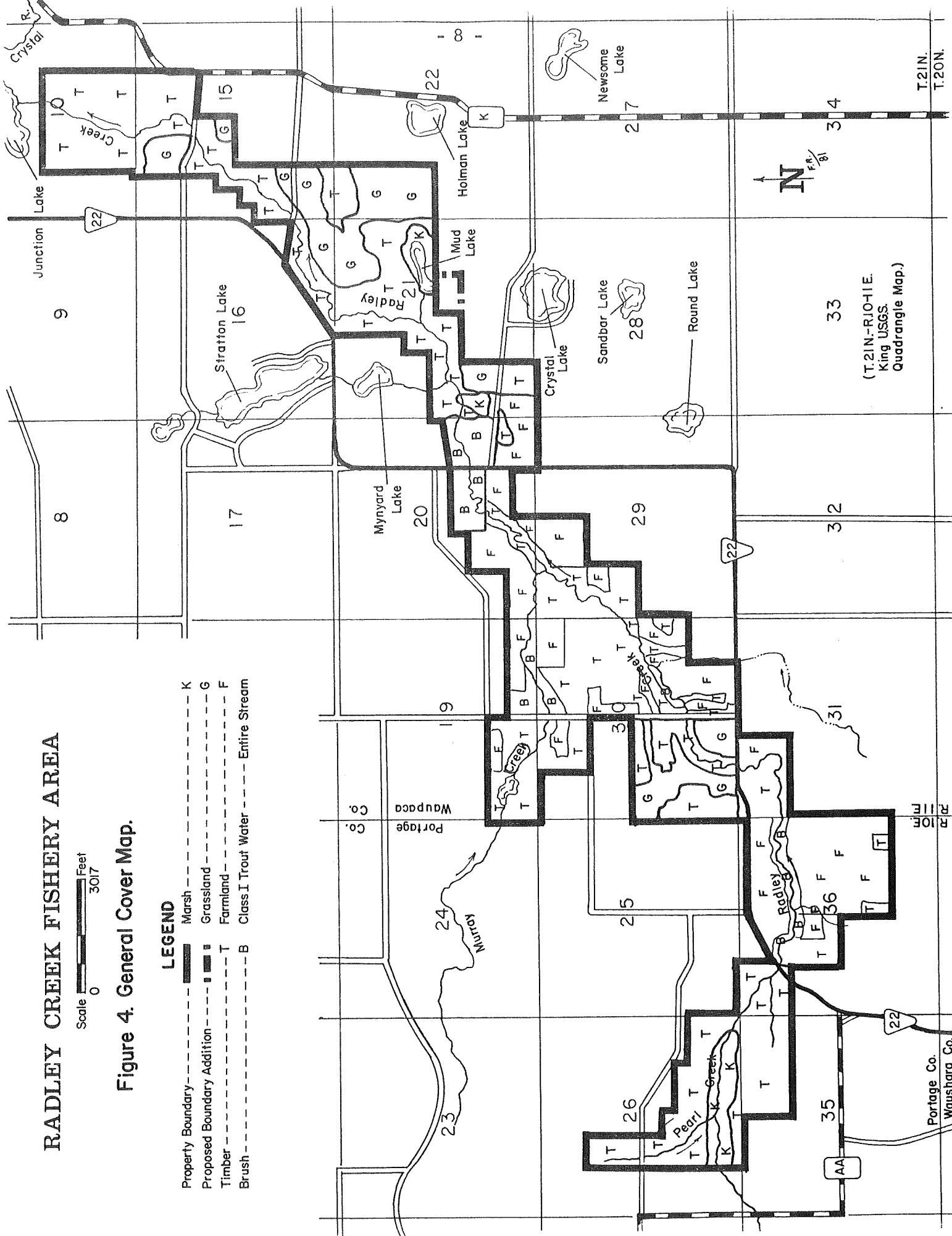
RADLEY CREEK FISHERY AREA

Scale 0 Feet 3017

Figure 4. General Cover Map.

LEGEND

- Property Boundary - - - - -
- Proposed Boundary Addition - - - - -
- Timber - - - - -
- Brush - - - - -
- Marsh - - - - -
- Grassland - - - - -
- Farmland - - - - -
- Class I Trout Water - - - - -
- Entire Stream - - - - -



A survey completed in 1981 of DNR state-owned lands within the boundaries of the Radley Creek Fishery Area is shown below in Table 1. Compartment reconnaissance of the property is proceeding according to schedule. Of the 963 acres in existing ownership, 265 are commercial forest land on which some type of forest management is possible and needed. The remaining 698 acres are considered non-commercial forest lands and other vegetation types with a wide range of ancillary uses commensurate with protection of the fishery, water resource and wildlife.

Table 1. 1981 Forest Reconnaissance Cover Types on Radley Creek Fishery Area, Waupaca and Portage Counties.

<u>Type</u>	<u>Acres</u>
Pine	92
Oak	194
Upland Brush	42
Lowland Brush	93
Grass	263
Tamarack	32
Swamp Hardwoods	172
Cropland	31
Keg emergent Vegetation	<u>45</u>
Grand Total	964

There are considerable defects among the oak timber types including oak wilt and trunk deformities. Although an occasional timber sale is possible, commercial use is primarily related to firewood sales and salvage operations of dead and dying trees.

Undergrowth in the oak types consists of thinly scattered patches of hazelbrush, raspberry, young oak and cherry. They provide a diversity of habitat conditions for a variety of game and non-game species of birds and animals. It is recognized that land-use practices such as streambank clearing and forest cuttings produce trade-offs in animal species, with some helped, some not. These trade-offs will be considered in future land management proposals to minimize harmful effects to game and non-game species.

Endangered and Threatened Species

There is a possibility that some endangered and threatened species of plants (sundew, pitcher plants, prairie plants) are present in an area proposed as a Scientific Area adjacent to Mud Lake in Section 21, T21N, R11E (See Figure 2). The designation of these lands as a scientific area will dedicate the area to research, teaching and preservation of a part of Wisconsin's natural heritage. The taking or removing of plants in this area will be limited to scientific collections by permit. Otherwise, no endangered or threatened species of fish, amphibians, molluscs, mammals, birds or reptiles are known to be present.

Water Resources

The Main Branch of Radley Creek (Figure 2) is formed by two small headwater streams that start in the Township of Belmont, Portage County. The North Branch of the Radley (Murray Creek) originates in Section 22, T21N, R10E while the South Branch of Radley Creek (Pearl Creek) has its origins in Sections 26 and 34, T21N, R10E. These two springhead streams flow in an easterly direction and merge in Section 29, T21N, R11E, Township of Dayton, Waupaca County. The stream, then known as Radley Creek, flows in a northeasterly direction to Junction Lake. The outlet from Junction Lake is part of the Crystal River that in turn flows into the Waupaca River system, and into the Wolf-Fox River drainage eventually reaching Lake Michigan by way of Green Bay.

In addition to the headwater streams, Radley Creek receives water from springs, three lake outlets and two smaller streams. The outlets are from Mynard, Mud and Stratton Lakes, and they release waters to the Radley that fluctuate with the air temperatures; at times excessively cold in winter and excessively warm in summer. Table 2 shows the trout streams of the fishery area, and data relating to the lakes.

Table 2a.

Trout Streams Within the Radley Creek Fishery Area, Portage and Waupaca Counties.

<u>Stream</u>	<u>County</u>	<u>Length (miles)</u> <u>Class I</u>	<u>Surface</u> <u>Acres</u>
Pearl Dr. (S.Br. Radley)	Portage	4.65	2.82
Murray Cr. (N.Br. Radley)	Waupaca	1.10	1.07
Pearl Cr. (S.Br. Radley)	Waupaca	1.70	2.27
Radley Creek	<u>Waupaca</u>	<u>4.00</u>	<u>8.73</u>
	<u>Totals</u>	<u>11.45</u>	<u>14.89</u>

Table 2b. Lakes Within the Radley Creek Fishery Area, Portage and Waupaca Counties.

<u>Lake</u>	<u>County</u>	<u>Surface</u> <u>Acres</u>	<u>Maximum</u> <u>Depth (ft.)</u>	<u>Total</u> <u>Alkalinity</u> <u>(p.p.m.)</u>	<u>pH</u>
Mud	Waupaca	10.8	3	132	7.4
Un-named Lake (SW 1/4, S19, T21N, R11E)	<u>Waupaca</u>	<u>2.1</u>	<u>6</u>	<u>152</u>	<u>7.7</u>
	<u>Total</u>	<u>12.9</u>			

As an example, water temperatures of 80° have been recorded in the Stratton Lake outlet at the confluence with the Radley. Water temperatures of the Radley upstream from this location were recorded at 58° whereas immediately downstream from the lake outlet a temperature of 78° existed. Fortunately, enough spring seepage in, and along the Radley, exist to lower stream temperatures back down to 60° temperatures within 1,000 feet downstream of the lake outlet. Radley Creek contains clear, hard water and bottom materials consist of sand, gravel, muck, rubble and peat. The entire stream is Class I trout water (Figure 4).

Historical, Architectural and Archaeological Features

Information concerning the location of any significant sites is lacking. The State Historical Society reports that the counties in which the fishery area is located have not been systematically surveyed for such resources. There is a possibility of existence of 2 prehistoric archeological sites and their locations are contained in the files of the State Historical Society and the Wautoma office of the Department of Natural Resources.

There may be other features within the boundary that contain undiscovered archeological material; therefore, before any movement of structures or soils, the Department of Natural Resources will consult with the Historical Society to determine whether an archeological survey of the affected area is warranted.

Ownership

Currently, 962.76 acres are owned in fee title on the fishery area and were acquired at a cost of \$434,955. An additional 1.40 acres are in perpetual easement purchased at a cost of \$1,600. The approved acreage goal is 1,082.92 acres.

Current Use

It is estimated that fishing for brook and brown trout on Radley Creek attracts anglers for 1,200 participant days annually. Hunting for big and small game, principally white-tailed deer, ruffed grouse, cottontail rabbits, fox and gray squirrels and raccoons, accounts for an estimated 2,900 participant days each year. Trapping for mink, muskrats, beaver, raccoons and foxes is estimated annually at 500 participant days, while other recreational uses account for 300 participant days each year.

Land Use Classification

The land within the fishery area (Figure 2) will be classified into resource protection and resource development areas. Because of its size, location, physical and biological features, most of the area will be classified as a fishery and wildlife area (RD₂).

With the increasing interest in establishing suitable dog training areas on public lands in Central Wisconsin, a 130-acre parcel of lowland brush and hardwoods located in SE 1/4, Section 20, and SE 1/4, Section 21, was designated as a dog training area in conformance with NR 17.02. Accordingly, it will be classified as a demonstration area (RD₁).

A resource protection land use classification will be established for a Scientific Area (S) along the shores of Mud Lake in Section 2, T21N, R11E. This area is composed of a small, shallow wilderness lake with a narrow, slow-moving outlet stream to Radley Creek. There is no inlet stream. Emergent aquatics and wild rice are abundant. The lake (10.5 acres) is surrounded and buffered by a bank of tamarack swamp with a bog understory of sphagnum moss, sundews and pitcher plants. Poison sumac is present in the shrub layer. To the north of the lake is an area of open oak forest or savanna with an understory having some prairie plants and grasses.

Approximately 80-90 acres (including the lake) will be included in this Scientific Area.

MANAGEMENT PROBLEMS

Severe erosion is taking place off high and steeply sloping streambanks. It will be necessary to use large rocks and boulders at the toe of these areas to retard the sliding action of the banks during highwater periods. Problem trees will have to cut from the slopes and seeding and/or sodding will be necessary to stabilize the soils.

There are areas of problem growths of brushy type vegetation adjacent to the stream. This heavy thick canopy of growth shades out aquatic vegetation, reducing production of invertebrate food organisms and causes streambank erosion during high water periods. Some windfalls are blocking and impounding water.

Some stream sections lack suitable trout habitat in the form of pool and bank cover, restricting production, which results in low numbers of catchable trout. Habitat development techniques are needed on these areas.

Beaver dams and activity are a continuing problem. Dams interfere with the movement of trout at spawning time, destroy spawning areas and affect the reproduction of native trout. They influence water flows, levels and temperatures to the detriment of trout. Beaver flowages contribute to wildlife, furbearers and waterfowl habitat, but present department policy requires beaver control on Class I trout water, which includes all of the Radley.

Dutch elm disease and oak wilt are chronic problems which result in the loss of sawtimber.

Heavy pasturing of livestock leaves some streambanks trampled and devoid of soil-binding grasses and sedges, resulting in severe streambank erosion problems. If left unchecked, several meanders will be lost to channel changes in the near future.

Of concern is the widespread use of fertilizers, pesticides and herbicides on agricultural lands in the watershed and their long-term effect on surface flows and the groundwater table that is the life-blood of the stream. Large blocks of land in the vicinity are being cleared for irrigated farming operations. This will result in loss of wildlife habitat and increase the potential for erosion from rapid runoff to the stream and its tributaries. There is concern for the effect on stream flows by pumping water from high capacity wells during dry summer months. It is unknown what long term effect this will eventually have on the groundwater aquifers that provide the abundant spring water to the stream system.

There are limited problems with illegal overnight camping, and littering is a continuing problem at access parking areas.

Carelessness with camp fires during drought periods is a potential hazard to public and private property. Arson fires are a problem in central Wisconsin.

High hunter density during the deer-gun season and fishing density in the early part of the trout season spill over to adjoining private lands causing trespass problems and reducing the quality of the outdoor experience.

From 25 to 35 percent of department signs on public areas fall prey to vandals yearly.

Platting and subdividing lands for private homes and recreational cottages is a common practice in Waupaca County. Some of the creek frontage within the acquisition boundaries is suitable for this type of development, which is incompatible with fish and wildlife goals and the objectives of providing general public use areas.

The lack of funding sources available for acquisition is a major stumbling block at this time and could adversely affect land control objectives in future years.

RECREATIONAL NEEDS AND JUSTIFICATIONS

The fishery area is located in central Wisconsin, midway between Appleton and Stevens Point approximately 120 miles north of Milwaukee and 90 miles from Madison.

Many persons from the neighboring states vacation in the Waupaca-Portage Counties area and creel census checks have documented that anglers from these and other population centers are attracted to the quality trout waters in the county.

In the 1980 census, Waupaca and Portage Counties had populations of 42,831 and 57,420, respectively, while the 7 adjacent counties with a common border to Waupaca and Portage Counties had populations totalling 512,438 people. Combined, the 9 counties had 612,689 persons living in them in 1980.

The latest summary of license sales available (1983) shows that fishing license sales of all types, including sportsmen licenses totalled 23,336 in Waupaca County and 13,333 in Portage County. Trout stamps sold totalled 3,831 and 3,799 for Waupaca and Portage Counties during the same year. On a statewide basis, about 12% of all licensed anglers fish for trout on inland waters. State-owned public use areas help meet local resident recreational needs and those of out-of-state visitors.

Tourism is a major industry for both counties. Gross sales in the hospitality, recreation, tourism and related services for Waupaca County alone amount to over 16 million dollars annually. Public ownership of recreational lands helps support this important local industry. There will be an increased emphasis and future need for outdoor recreation in the State of Wisconsin. The acquisition and development of public lands in central Wisconsin will help meet these needs and is essential to energy considerations and reasonably priced public recreational activities in the decades ahead. By 1990, some recreational opportunities may be limited in central Wisconsin without intensive management or increased acquisition of choice resource areas.

ANALYSIS OF ALTERNATIVES

Do Nothing

A do nothing approach would mean increased pressure and public use of the existing areas under public ownership. Future users would find the present area overcrowded and the quality of the outdoor experience reduced. Past investments in land acquisition and development could not be adequately protected because of disjointed land ownerships. Key parcels of land would have to be considered and in some way controlled to protect, maintain and improve them for future generations.

Habitat preservation and improvement activities such as streambank riprap, instream device construction, streambank vegetative control, and alleviation of chronic upland erosion problems are expensive and private landowners in general have too little incentive to maintain or improve habitat conditions. The end result leads to a general deterioration of a variety of habitat types.

The most productive trout streams in Wisconsin have open marsh-meadow type stream edge. The ecological niche would be lost through plant succession by endorsing a do-nothing approach. The stream edge would be dominated by brush and woody type vegetation, degrading the stream habitat for trout by reducing bank undercuts, pool cover and invertebrate insect life.

Excessive shade would reduce aquatic vegetation in the stream channel that is the basic link in the food chain for stream organisms. Dead and dying trees would fall into the channel altering the flow and cause difficult fishing conditions. Habitat conditions could deteriorate to the point where the stream could no longer maintain a self-sufficient trout population and annual trout stocking would be needed to maintain a viable fishery.

Subdivisions would eventually result on suitable stream frontage within the boundary and trespass restrictions would deny the general public suitable fishing frontage and access sites along a popular navigable waterway.

Expand the Fishery Area (Recommended Alternative)

This master plan recommends an immediate increase of 500 acres in the acreage goal. The long-range goal of public ownership of all lands within the original approved boundary (established in 1958) remains a desirable objective. This master plan will recommend that the acreage goal be increased commensurate with future expanding statewide acreage goals and funding sources necessary to accommodate the projected increase in the demand for recreational areas.

Reduce the Size of the Fishery Area

Attainment of goals and objectives would be impossible if the area was reduced. This would be contrary to this agency's major function of preserving and perpetuating renewable resources and providing user opportunities associated with these resources.